Serial No.: 10/626,424
Examiner: Robert W. Wilson

REMARKS/ARGUMENTS

Claims 1-24 remain in this application.

Claims 1-24 were rejected under 35 USC §112, second paragraph, as being indefinite "because the applicant does not follow through on antecedent basis, inconsistent refers to requester and nodes...the steps do not clearly relate to each other in the claim language."

Currently amended claim 1 discloses a parallel round-robin arbiter (PRAA) for arbitrating among a plurality of N requesting entities (requesters), comprising:

a first plurality of leaf nodes coupled together in a directed ring, [[each]] wherein at least one of the leaf nodes operating to propagates a request from a corresponding one of the plurality of requesters, wherein said directed ring forms a leaf level in a hierarchical decision tree having [(log$_{Base}$N)+1] levels, where N = [Base]^n for [[some]] n > 1;

a second plurality of nodes organized in a subtree having [log$_{Base}$N] levels of said hierarchical decision tree, wherein a root level includes a root node and a sub-plurality of intermediate levels each including [Base]^i internal nodes, where i = 1, 2, ..., [(log$_{Base}$N)-1]; and

logic associated with said subtree's nodes [[for]] that hierarchically resolves[[ing]] requests propagated by said leaf nodes, wherein each of the leaf nodes is operable to transmits its grant to one of the leaf node's [[its]] immediate leaf-node neighbors coupled to it via said directed ring.

The Examiner stated, "referring to claim 1, it is unclear whether the applicant is claiming logic, or apparatus, or method." As can be seen from the preamble, claim 1 is disclosing a parallel round-robin arbiter which in this embodiment is an apparatus. In other embodiments, the functionality disclosed in claim 1 can be provided via a computer readable medium comprising instructions for or a method for providing parallel round-robin arbiter functionality.

The Examiner stated, "it is unclear whether the logic performs the steps associated with the nodes." As can be seen from the last element, the logic is associated with the subtree's nodes and hierarchically resolves requests propagated by the leaf nodes.

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The Examiner stated, "applicant uses inconsistent terminology such as N requesting entities and N corresponding requesters." Applicant has amended the claim to clarify the terms.

The Examiner stated, "logic refers to said subtree's nodes...which nodes are referred to?" Said subtree's nodes refers to the 'second plurality of nodes organized in a subtree.'

The Examiner stated, "what is meant by its and some?" Applicant has amended the claim to remove the term some. Further, the term "its" refers to the leaf node.

The Examiner stated, "what is meant by operable to?" Applicant has amended the claim to clarify the terms "operable to" and "operating to."

Should the Examiner have further questions related to currently amended claim 1, Applicant respectfully directs the Examiner to paragraphs [0018]-[0021] of the instant invention which are provided below:

[0018] Without loss of generality, FIG. 2 depicts a row portion 200 of the crossbar switch element shown in FIG. 1 for illustrating a PRRA scheme according to an embodiment of the present invention for resolving a plurality of requests directed toward a common resource, identified herein as $Output_{[0]}$ 206. Each of the N requesters 102-0 through 102-(N-1) is operable to generate a request "R" that is received by a PRRA 202, which is coupled to a switching unit module 204 comprised of N switching units corresponding to the N requesters. Upon successful resolution of the multiple requests via an arbitration process described in detail in the following sections, the PRRA 202 is operable to generate a grant message "G" towards a winning requester. Further, in response to the arbitration result, a control message may be generated towards the switching element associated with the winning requester, whereby an access pathway between the winning requester and the common resource 206 is established.

[0019] In accordance with the teachings of the present invention, the PRRA scheme is provided as a hierarchical decision tree having $[(log_{Base}N)+1]$ levels, where $N = [Base]^n$ for some $n > 1$, wherein each of the N requesters is coupled to a leaf node (l-node) that is assigned a priority value, which could be either fixed or determined via a dynamic priority assignment procedure. Each leaf node is coupled to one of its next neighbor nodes (i.e., either its left leaf node or its

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right leaf node), thereby forming a directed ring that becomes the leaf level in the hierarchical decision tree.

[0020] In addition to the N leaf nodes on the leaf level, the hierarchical decision tree includes another plurality of nodes organized in a subtree of [K-1] levels, wherein $K = [(\log_{Base}N)+1]$. At the apex of the tree, a root level (or, level 0) includes a single root node (r-node). The remaining [K-2] levels are denoted as intermediary levels, each including a sub-plurality of internal nodes $[Base]^i$, where $i = 1, 2, ..., [(\log_{Base}N)-1]$, which may be designated as i-nodes.

[0021] As will be set forth in greater detail below, each leaf node is operable to propagate a request from its corresponding requester towards the subtree. In addition, the leaf nodes are operable to propagate their priority assignment status (via signals variously known as "Head" (H) signals or "Flag" signals) towards the subtree for decision-making. Combinational logic circuitry distributively associated with the subtree's nodes is operable to hierarchically resolve the requests propagated by the leaf nodes all the way towards the root node, which generates a Grant signal that is cascaded through the subtree until a leaf node associated with the selected requester receives it. As pointed out above, each leaf node is coupled to either of its immediate neighbors via a directed ring, and the leaf node obtaining the grant is operable to transmit its grant to one of the neighboring leaf nodes in order to set its priority logic (i.e., the neighbor node's logic) for the next arbitration cycle.

The Examiner stated, "among n requesting entities has antecedent basis." Applicant has amended claims 2-13 to correct such antecedent issues.

The Examiner stated, "referring to claim 4, what is meant by 'its' and 'at least one leaf node' has antecedent basis." Applicant refers to the term 'its' as the internal node and the claim has been amended to correct the antecedent issue.

The Examiner stated, "referring to claims 5-14, the applicant has used 'internal node', 'combinational circuitry' both of which have antecedent basis." Applicant has amended claims 4-9 to rectify the 'internal node' antecedent issue and claims 5-13 to rectify the 'combinational circuitry' antecedent issue.

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The Examiner stated, "claims 14-19 are rejected as being indefinite because the specification does not clearly point out 'means for receiving' and 'means for hierarchically resolving.'" Applicant has amended claims 14-16 to rectify the antecedent issues.

The Examiner stated, "referring to claim 16, what is meant by some?" Applicant has amended the claim to remove the term some.
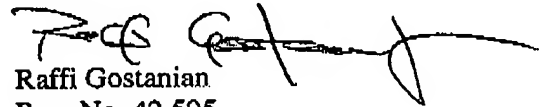
The Examiner stated, "referring to claim 20, what is meant by operable to?" Applicant has amended the claim to remove the term "operable to."

Applicant believes currently amended claim 1 now overcomes the 35 USC §112, second paragraph, rejection. Based on the Examiner's findings related to claim 1, Applicant will be better able to respond to the rejections of claims 14 and 15, as well as 20 and 21.

Should the Examiner have any further comments or suggestions, it is respectfully requested that the Examiner contact the undersigned to expeditiously resolve any outstanding issues.

Respectfully submitted,

ALCATEL LUCENT

Dated: _07/27/2007_

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